United States Government **Department of Energy**

memorandum

Idaho Operations Office

Date: May 31, 2001

Subject: CSSG comments on Implementation Guides DOE G 421.X.X, DOE G 423.X, and DOE D 424.X-XRevision of DOE O 420.1 (OS-01-xxx)

To: Kim Loll Co-chair, NCSPMT
H. Johnson Co-chair, NCSPMT

The Criticality Safety Support Group (CSSG) has completed a review of the following draft documents:

1) DOE G 421.X.X - IMPLEMENTATION GUIDE FOR USE IN DEVELOPING DOCUMENTED SAFETY ANALYSES TO MEET SUBPART B OF 10 CFR PART 830.

2) DOE G 423.X - IMPLEMENTATION GUIDE FOR USE IN DEVELOPING TECHNICAL SAFETY REQUIREMENTS.

3) DOE D 424.X-X - Implementation Guide for Use in Addressing Unreviewed Safety Question (USQ) Requirements.

Because of the review provided by the End-users Group and the Criticality Safety Coordinating Team (CSCT), we are confident that the attached suggested improvements represent a consensus of the criticality safety experts within the Contractor and the DOE communities. Thus there should be few significant, if any, additional comments pertaining to criticality safety that will be sent to EH in response to their request for feedback on these drafts. This review process, whereby the Contractor and DOE communities of experts speak with one voice, should greatly assist EH in arriving at products that represent the collective knowledge and judgment of the discipline experts.

In both DOE G 421.X.X and DOE G 423.X, the word contingency is used to mean "a barrier to criticality". This is not correct. The meaning of contingency is broadly **change or unexpected event**. If you consult Webster's, it is "an event that is of possible but uncertain occurrence" as well as other related verbiage that all implies some sort of CHANGE, not a barrier.

The double contingency principle is generally accepted as a guide to the proper degree of protection against operational abnormalities that are improbable but still cannot be ignored. This rule calls for controls such that no single mishap can lead to a criticality accident. What is important is to have thought of all credible upsets and be convinced that the operation is still

subcritical if any of them occur. The most important goal in all our minds must be in maintaining subcriticality. When we begin counting contingencies then we have lost sight of the real goal. The DCP is simply an expression of guidance to the analyst and operator that one should strive for defense in depth and not susceptible to any single failure possibly resulting in a criticality accident.
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This should help all to understand that we incorporate "controls" (at least two and most of the time more than two) into the normal approved process that naturally establishes "barriers to criticality" and we also evaluate credible abnormal conditions (contingencies) to ensure that no single change or mishap leads to criticality. If this concept can be understood, it will certainly help us all speak the same language.

As a general comment, the 10 CFR 830 Rule acknowledges DOE-STD-3009 as a safe harbor and acceptable method of meeting the intent of the Rule, but the flavor of the draft TSR Guide seems much stronger, as it pertains to making criticality controls TSRs, than the words found in DOE-STD-3009.

Attached are specific comments to the draft documents.

In order to expedite the review and approval process, the CSSG has prepared a draft transmittal letter for the NCSPMT. This letter and attachments are included with this memo.

Original signed by
Adolf S. Garcia,
Chairman, Criticality Safety Support Group

cc. w/attachments.

NCSPMT
CSSG
John Evans